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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/083,402      | 02/27/2002  | Yutaka Shimada       | XA-9629             | 7383             |

7590 07/23/2003

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EL ARINI, ZEINAB

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

1746

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|  |                        |                     |
|--|------------------------|---------------------|
| <b>Office Action Summary</b>   | <b>Application No.</b> | <b>Applicant(s)</b> |
|  | 10/083,402             | SHIMADA ET AL.      |
| <b>Examiner</b>  | <b>Art Unit</b>        |                     |
|  | Zeinab E. EL-Arini     | 1746                |
| <i>-- Th MAILING DATE of this communication app ars on th cover sh et with th correspond nce addr ss --</i>  |                        |                     |
| <b>Period for Reply</b>  |                        |                     |
| A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  |                        |                     |
| <ul style="list-style-type: none"> <li>- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.</li> <li>- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.</li> <li>- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.</li> <li>- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).</li> <li>- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).</li> </ul>   |                        |                     |
| <b>Status</b>  |                        |                     |
| <p>1)<input type="checkbox"/> Responsive to communication(s) filed on _____.</p> <p>2a)<input type="checkbox"/> This action is <b>FINAL</b>.                    2b)<input checked="" type="checkbox"/> This action is non-final.</p> <p>3)<input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i>, 1935 C.D. 11, 453 O.G. 213.</p>  |                        |                     |
| <b>Disposition of Claims</b>   |                        |                     |
| <p>4)<input checked="" type="checkbox"/> Claim(s) <u>1-32</u> is/are pending in the application.</p> <p>4a) Of the above claim(s) _____ is/are withdrawn from consideration.</p> <p>5)<input type="checkbox"/> Claim(s) _____ is/are allowed.</p> <p>6)<input checked="" type="checkbox"/> Claim(s) <u>1-32</u> is/are rejected.</p> <p>7)<input type="checkbox"/> Claim(s) _____ is/are objected to.</p> <p>8)<input type="checkbox"/> Claim(s) _____ are subject to restriction and/or election requirement.</p>   |                        |                     |
| <b>Application Papers</b>  |                        |                     |
| <p>9)<input type="checkbox"/> The specification is objected to by the Examiner.</p> <p>10)<input type="checkbox"/> The drawing(s) filed on _____ is/are: a)<input type="checkbox"/> accepted or b)<input type="checkbox"/> objected to by the Examiner.<br/>Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).</p> <p>11)<input type="checkbox"/> The proposed drawing correction filed on _____ is: a)<input type="checkbox"/> approved b)<input type="checkbox"/> disapproved by the Examiner.<br/>If approved, corrected drawings are required in reply to this Office action.</p> <p>12)<input type="checkbox"/> The oath or declaration is objected to by the Examiner.</p>  |                        |                     |
| <b>Priority under 35 U.S.C. §§ 119 and 120</b>   |                        |                     |
| <p>13)<input checked="" type="checkbox"/> Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).</p> <p>a)<input checked="" type="checkbox"/> All b)<input type="checkbox"/> Some * c)<input type="checkbox"/> None of:</p> <ol style="list-style-type: none"> <li>1.<input checked="" type="checkbox"/> Certified copies of the priority documents have been received.</li> <li>2.<input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____.</li> <li>3.<input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).</li> </ol> <p>* See the attached detailed Office action for a list of the certified copies not received.</p> <p>14)<input type="checkbox"/> Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).<br/>a)<input type="checkbox"/> The translation of the foreign language provisional application has been received.</p> <p>15)<input type="checkbox"/> Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.</p> |                        |                     |
| <b>Attachment(s)</b>   |                        |                     |
| <p>1)<input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3)<input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 .</p> <p>4)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____.</p> <p>5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6)<input type="checkbox"/> Other: _____</p>   |                        |                     |

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities: In the specification, page 13, line 15, "of the like" is confusing. "of the like" should be changed to read "or the like".

Appropriate correction is required.

Claims 1-32 are pending.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 26, line 3, "using brush relative to" is indefinite and confusing term.

In claim 1, line 4, "a rotating wafer" lacks antecedent basis. In claim 1, line 5, claim 26, line 7, "at least one of a quantity" is relative term.

In claim 2, line 4, "cleaning liquids" lacks antecedent basis. In claim 2, line 4, and in claim 3, line 3, "the interval" lacks antecedent basis. In claims 2-4, "at least one of the quantities" is relative term.

In claim 3, line 5, claim 15, line 4, "the number of revolution" lacks antecedent basis.

In claim 6, line 7-8, claim 8, line 8, claim 10, line 10, claims 18, 20, line 8, and claim 22, line 10, claim 29, line 7, claim 30, line 7, "the peripheral velocity" lacks antecedent basis.

In claim 9, lines 5-6, "to flowing" is indefinite term.

In claim 10, line 8, "to from" is indefinite term.

In claims 5-10, 17-22, "brush is moved from-----", lacks antecedent basis.

In claim 11, line 3, "brush returns to a wet section" lacks antecedent basis. At line 4, "demineralized water" lacks antecedent basis.

In claims 12, 23, 24, line 3, "brush returns to a wait section" Lacks antecedent basis.

In claims 13, 25, line 3, "functional water" is indefinite term.

In claim14, line 3, "a brush relative to a rotating wafer" is indefinite term. At line 5, "cleaning condition" is indefinite term. At lines 6-7, "the interval" lacks antecedent basis.

In claim 23, line 5, "demineralized water" lacks antecedent basis.

In claim 27, line 4, "the same cleaning process chamber" lacks antecedent basis.

In claim 29, line 6, "cleaning liquids" lacks antecedent basis.

In claim 31, lines 3-4, "the said is set "is indefinite term.

Claims 29 and 30 are confusing.

Claims 1-32 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: The steps of manufacturing a

semiconductor integrated circuit device, because the method as claimed includes a step of cleaning a wafer.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Miyashita et al (6,167,583).

Miyashita et al. teach a method of cleaning semiconductor substrate comprising using a brush rotated relative to the rotating wafer and thereby cleaning the wafer. The reference teaches the flowing and the supply steps as claimed. See the abstract, Fig. 1, col. 6, lines 56- col. 7, line 3.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemizu et al. (5,858,112) in combination with Kubota et al. (6,059,891).

Yonemizu et al. teach a method of cleaning a substrate comprising rotating and cleaning the substrate utilizing a brush which is brought into contact with the substrate. The reference also teaches flowing the cleaning liquid into the brush. See Fig. 9, and col. 10, lines 32-43. The reference does not teach regulating the cleaning liquid as claimed.

Kubota et al. teach an apparatus and method for washing substrate. The reference teaches controlling the operation of at least one of the washing means,----, so that to control the physical force acting on the contaminants present on the surface of the substrate depending on the state of the contaminant.

It would have been obvious for one skill in the art to use the controlling or adjusting step taught by Kubota et al. in the Yonemizu et al process to obtain the claimed process. This is because both references are from the same technical endeavor which is cleaning semiconductor substrate.

#### ***Allowable Subject Matter***

Claims 2-13, 15-25, and 27-32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim, and any intervening claims.

Claims 14 and 26 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeinab EL-Arini whose telephone number is (703)308-3320. The examiner can normally be reached on Monday- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703)308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

*zeinab elarini*

ZEE  
July 20, 2003

**ZEINAB EL-ARINI  
PRIMARY EXAMINER**